



SPEC CPU®2017 Integer Speed Result

Copyright 2017-2021 Standard Performance Evaluation Corporation

Hewlett Packard Enterprise

(Test Sponsor: HPE)

Synergy 480 Gen10 Plus
(2.30 GHz, Intel Xeon Platinum 8380)

SPECSpeed®2017_int_base = 11.6

SPECSpeed®2017_int_peak = 11.8

CPU2017 License: 3

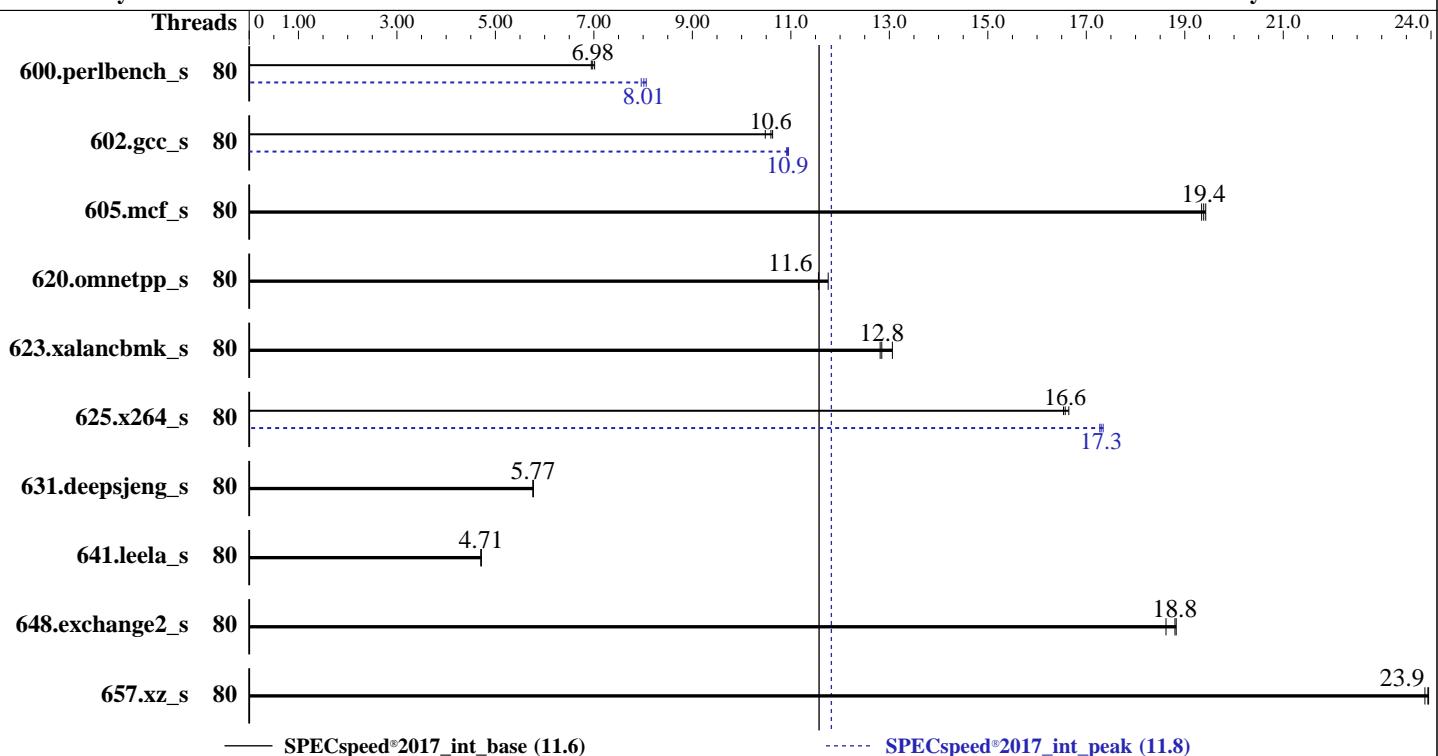
Test Date: May-2021

Test Sponsor: HPE

Hardware Availability: Jun-2021

Tested by: HPE

Software Availability: Dec-2020



Hardware

CPU Name: Intel Xeon Platinum 8380
Max MHz: 3400
Nominal: 2300
Enabled: 80 cores, 2 chips
Orderable: 1, 2 chip(s)
Cache L1: 32 KB I + 48 KB D on chip per core
L2: 1.25 MB I+D on chip per core
L3: 60 MB I+D on chip per chip
Other: None
Memory: 1 TB (16 x 64 GB 2Rx4 PC4-3200AA-R)
Storage: 1 x 800 GB SAS SSD, RAID 0
Other: None

OS:

Red Hat Enterprise Linux release 8.3 (Ootpa)

Kernel 4.18.0-240.el8.x86_64

Compiler: C/C++: Version 2021.1 of Intel oneAPI DPC++/C++ Compiler Build 20201113 for Linux;
Fortran: Version 2021.1 of Intel Fortran Compiler Classic Build 20201112 for Linux;
C/C++: Version 2021.1 of Intel C/C++ Compiler Classic Build 20201112 for Linux

Parallel:

Yes

Firmware:

HPE BIOS Version I44 v1.42 05/16/2021 released Jun-2021

File System:

xfs

System State:

Run level 3 (multi-user)

Base Pointers:

64-bit

Peak Pointers:

64-bit

Other: jemalloc memory allocator V5.0.1

Power Management: BIOS and OS set to prefer performance at the cost of additional power usage



SPEC CPU®2017 Integer Speed Result

Copyright 2017-2021 Standard Performance Evaluation Corporation

Hewlett Packard Enterprise

(Test Sponsor: HPE)

Synergy 480 Gen10 Plus
(2.30 GHz, Intel Xeon Platinum 8380)

SPECspeed®2017_int_base = 11.6

SPECspeed®2017_int_peak = 11.8

CPU2017 License: 3

Test Date: May-2021

Test Sponsor: HPE

Hardware Availability: Jun-2021

Tested by: HPE

Software Availability: Dec-2020

Results Table

Benchmark	Base								Peak							
	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
600.perlbench_s	80	255	6.95	254	6.98	253	7.02	80	223	7.96	220	8.06	221	8.01		
602.gcc_s	80	380	10.5	375	10.6	376	10.6	80	364	11.0	364	10.9	365	10.9		
605.mcf_s	80	243	19.4	244	19.3	244	19.4	80	243	19.4	244	19.3	244	19.4		
620.omnetpp_s	80	141	11.6	141	11.6	139	11.8	80	141	11.6	141	11.6	139	11.8		
623.xalancbmk_s	80	110	12.8	111	12.8	108	13.1	80	110	12.8	111	12.8	108	13.1		
625.x264_s	80	107	16.5	106	16.6	106	16.6	80	102	17.3	102	17.3	102	17.3		
631.deepsjeng_s	80	248	5.77	248	5.77	249	5.76	80	248	5.77	248	5.77	249	5.76		
641.leela_s	80	362	4.71	362	4.71	362	4.71	80	362	4.71	362	4.71	362	4.71		
648.exchange2_s	80	156	18.8	156	18.8	158	18.6	80	156	18.8	156	18.8	158	18.6		
657.xz_s	80	258	24.0	258	23.9	259	23.9	80	258	24.0	258	23.9	259	23.9		

SPECspeed®2017_int_base = 11.6

SPECspeed®2017_int_peak = 11.8

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

Operating System Notes

Stack size set to unlimited using "ulimit -s unlimited"

Transparent Huge Pages enabled by default

Prior to runcpu invocation

Filesystem page cache synced and cleared with:

sync; echo 3> /proc/sys/vm/drop_caches

Environment Variables Notes

Environment variables set by runcpu before the start of the run:

KMP_AFFINITY = "granularity=fine,scatter"

LD_LIBRARY_PATH = "/cpu2017/lib/intel64:/cpu2017/je5.0.1-64"

MALLOC_CONF = "retain:true"

OMP_STACKSIZE = "192M"

General Notes

Binaries compiled on a system with 1x Intel Core i9-7980XE CPU + 64GB RAM memory using Redhat Enterprise Linux 8.0

NA: The test sponsor attests, as of date of publication, that CVE-2017-5754 (Meltdown) is mitigated in the system as tested and documented.

Yes: The test sponsor attests, as of date of publication, that CVE-2017-5753 (Spectre variant 1) is mitigated in the system as tested and documented.

Yes: The test sponsor attests, as of date of publication, that CVE-2017-5715 (Spectre variant 2) is mitigated in the system as tested and documented.

jemalloc, a general purpose malloc implementation

built with the RedHat Enterprise 7.5, and the system compiler gcc 4.8.5

(Continued on next page)



SPEC CPU®2017 Integer Speed Result

Copyright 2017-2021 Standard Performance Evaluation Corporation

Hewlett Packard Enterprise

(Test Sponsor: HPE)

Synergy 480 Gen10 Plus
(2.30 GHz, Intel Xeon Platinum 8380)

SPECspeed®2017_int_base = 11.6

SPECspeed®2017_int_peak = 11.8

CPU2017 License: 3

Test Sponsor: HPE

Tested by: HPE

Test Date: May-2021

Hardware Availability: Jun-2021

Software Availability: Dec-2020

General Notes (Continued)

sources available from jemalloc.net or <https://github.com/jemalloc/jemalloc/releases>

Submitted_by: "Bucek, James" <james.bucek@hpe.com>

Submitted: Tue May 25 00:20:57 EDT 2021

Submission: cpu2017-20210525-26745.sub

Submitted_by: "Bhatnagar, Prateek" <prateek.bhatnagar@hpe.com>

Submitted: Tue Jun 1 09:13:10 EDT 2021

Submission: cpu2017-20210525-26745.sub

Platform Notes

BIOS Configuration

Workload Profile set to General Peak Frequency Compute

Intel Hyper-Threading set to Disabled

Thermal Configuration set to Maximum Cooling

Advanced Memory Protection set to Advanced ECC

Memory Patrol Scrubbing set to Disabled

Enhanced Processor Performance set to Enabled

Enhanced Processor Performance Profile set to Aggressive

Workload Profile set to Custom

NUMA Group Size Optimization set to Flat

DCU Stream Prefetcher set to Disabled

Adjacent Sector Prefetch set to Disabled

Minimum Process Idle Power Package C-State set to No Package State

The system ROM used for this result contains Intel microcode version 0xd0002a0 for the Intel Xeon Platinum 8380 processor.

Sysinfo program /cpu2017/bin/sysinfo

Rev: r6622 of 2021-04-07 982a61ec0915b55891ef0e16acaf64d

running on localhost.localdomain Fri May 21 14:44:36 2021

SUT (System Under Test) info as seen by some common utilities.

For more information on this section, see

<https://www.spec.org/cpu2017/Docs/config.html#sysinfo>

From /proc/cpuinfo

model name : Intel(R) Xeon(R) Platinum 8380 CPU @ 2.30GHz

2 "physical id"s (chips)

80 "processors"

cores, siblings (Caution: counting these is hw and system dependent. The following excerpts from /proc/cpuinfo might not be reliable. Use with caution.)

cpu cores : 40

siblings : 40

physical 0: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24

(Continued on next page)



SPEC CPU®2017 Integer Speed Result

Copyright 2017-2021 Standard Performance Evaluation Corporation

Hewlett Packard Enterprise

(Test Sponsor: HPE)

Synergy 480 Gen10 Plus
(2.30 GHz, Intel Xeon Platinum 8380)

SPECspeed®2017_int_base = 11.6

SPECspeed®2017_int_peak = 11.8

CPU2017 License: 3

Test Date: May-2021

Test Sponsor: HPE

Hardware Availability: Jun-2021

Tested by: HPE

Software Availability: Dec-2020

Platform Notes (Continued)

```
25 26 27 28 29 30 31 32 33 34 35 36 37 38 39
physical cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
25 26 27 28 29 30 31 32 33 34 35 36 37 38 39
```

From lscpu from util-linux 2.32.1:

```
Architecture: x86_64
CPU op-mode(s): 32-bit, 64-bit
Byte Order: Little Endian
CPU(s): 80
On-line CPU(s) list: 0-79
Thread(s) per core: 1
Core(s) per socket: 40
Socket(s): 2
NUMA node(s): 2
Vendor ID: GenuineIntel
CPU family: 6
Model: 106
Model name: Intel(R) Xeon(R) Platinum 8380 CPU @ 2.30GHz
Stepping: 6
CPU MHz: 2694.298
BogoMIPS: 4600.00
Virtualization: VT-x
L1d cache: 48K
L1i cache: 32K
L2 cache: 1280K
L3 cache: 61440K
NUMA node0 CPU(s): 0-39
NUMA node1 CPU(s): 40-79
Flags: fpu vme de pse tsc msr pae mce cx8 apic sep mtrr pge mca cmov
pat pse36 clflush dts acpi mmx fxsr sse sse2 ss ht tm pbe syscall nx pdpe1gb rdtscp
lm constant_tsc art arch_perfmon pebs bts rep_good nopl xtTopology nonstop_tsc cpuid
aperfmpf perf_pni pclmulqdq dtes64 monitor ds_cpl vmx smx est tm2 ssse3 sdbg fma cx16
xtpr pdcm pcid dca sse4_1 sse4_2 x2apic movbe popcnt tsc_deadline_timer aes xsave
avx f16c rdrand lahf_lm abm 3dnowprefetch cpuid_fault epb cat_l3 invpcid_single ssbd
mba ibrs ibpb stibp ibrs_enhanced tpr_shadow vnmi flexpriority ept vpid ept_ad
fsgsbase tsc_adjust bmi1 hle avx2 smep bmi2 erms invpcid cqmq rdt_a avx512f avx512dq
rdseed adx smap avx512ifma clflushopt clwb intel_pt avx512cd sha_ni avx512bw
avx512vl xsaveopt xsavec xgetbv1 xsaves cqmq_llc cqmq_occup_llc cqmq_mbm_total
cqmq_mbm_local split_lock_detect wbnoinvd dtherm ida arat pln pts avx512vbmi umip pku
ospke avx512_vbmi2 gfni vaes vpclmulqdq avx512_vnni avx512_bitalg tme
avx512_vpocntdq la57 rdpid md_clear pconfig flush_l1d arch_capabilities
```

```
/proc/cpuinfo cache data
cache size : 61440 KB
```

From numactl --hardware

WARNING: a numactl 'node' might or might not correspond to a physical chip.

(Continued on next page)



SPEC CPU®2017 Integer Speed Result

Copyright 2017-2021 Standard Performance Evaluation Corporation

Hewlett Packard Enterprise

(Test Sponsor: HPE)

Synergy 480 Gen10 Plus
(2.30 GHz, Intel Xeon Platinum 8380)

SPECspeed®2017_int_base = 11.6

SPECspeed®2017_int_peak = 11.8

CPU2017 License: 3

Test Sponsor: HPE

Tested by: HPE

Test Date: May-2021

Hardware Availability: Jun-2021

Software Availability: Dec-2020

Platform Notes (Continued)

```
available: 2 nodes (0-1)
node 0 cpus: 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27
28 29 30 31 32 33 34 35 36 37 38 39
node 0 size: 483508 MB
node 0 free: 514511 MB
node 1 cpus: 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64
65 66 67 68 69 70 71 72 73 74 75 76 77 78 79
node 1 size: 485098 MB
node 1 free: 515448 MB
node distances:
node    0    1
 0:   10   20
 1:   20   10

From /proc/meminfo
MemTotal:           1056521504 kB
HugePages_Total:        0
Hugepagesize:         2048 kB

/sbin/tuned-adm active
  Current active profile: throughput-performance

From /etc/*release* /etc/*version*
os-release:
  NAME="Red Hat Enterprise Linux"
  VERSION="8.3 (Ootpa)"
  ID="rhel"
  ID_LIKE="fedora"
  VERSION_ID="8.3"
  PLATFORM_ID="platform:el8"
  PRETTY_NAME="Red Hat Enterprise Linux 8.3 (Ootpa)"
  ANSI_COLOR="0;31"
redhat-release: Red Hat Enterprise Linux release 8.3 (Ootpa)
system-release: Red Hat Enterprise Linux release 8.3 (Ootpa)
system-release-cpe: cpe:/o:redhat:enterprise_linux:8.3:ga

uname -a:
Linux localhost.localdomain 4.18.0-240.el8.x86_64 #1 SMP Wed Sep 23 05:13:10 EDT 2020
x86_64 x86_64 x86_64 GNU/Linux

Kernel self-reported vulnerability status:

CVE-2018-12207 (iTLB Multihit):          Not affected
CVE-2018-3620 (L1 Terminal Fault):        Not affected
Microarchitectural Data Sampling:          Not affected
CVE-2017-5754 (Meltdown):                 Not affected
CVE-2018-3639 (Speculative Store Bypass): Mitigation: Speculative Store
```

(Continued on next page)



SPEC CPU®2017 Integer Speed Result

Copyright 2017-2021 Standard Performance Evaluation Corporation

Hewlett Packard Enterprise

(Test Sponsor: HPE)

Synergy 480 Gen10 Plus
(2.30 GHz, Intel Xeon Platinum 8380)

CPU2017 License: 3

Test Sponsor: HPE

Tested by: HPE

SPECspeed®2017_int_base = 11.6

SPECspeed®2017_int_peak = 11.8

Test Date: May-2021

Hardware Availability: Jun-2021

Software Availability: Dec-2020

Platform Notes (Continued)

CVE-2017-5753 (Spectre variant 1):

Bypass disabled via prctl and seccomp

Mitigation: usercopy/swapgs barriers and __user pointer sanitization

CVE-2017-5715 (Spectre variant 2):

Mitigation: Enhanced IBRS, IBPB: conditional, RSB filling

CVE-2020-0543 (Special Register Buffer Data Sampling): Not affected

CVE-2019-11135 (TSX Asynchronous Abort): Not affected

run-level 3 May 21 14:41

SPEC is set to: /cpu2017

Filesystem	Type	Size	Used	Avail	Use%	Mounted on
/dev/sdb4	xfs	740G	280G	460G	38%	/

From /sys/devices/virtual/dmi/id

Vendor:	HPE
Product:	Synergy 480 Gen10 Plus
Product Family:	Synergy
Serial:	QH08NP000Q

Additional information from dmidecode 3.2 follows. WARNING: Use caution when you interpret this section. The 'dmidecode' program reads system data which is "intended to allow hardware to be accurately determined", but the intent may not be met, as there are frequent changes to hardware, firmware, and the "DMTF SMBIOS" standard.

Memory:

16x Micron 36ASF8G72PZ-3G2B2	64 GB	2 rank	3200
16x UNKNOWN	NOT AVAILABLE		

BIOS:

BIOS Vendor:	HPE
BIOS Version:	I44
BIOS Date:	05/16/2021
BIOS Revision:	1.42
Firmware Revision:	2.40

(End of data from sysinfo program)

Compiler Version Notes

=====

C | 600.perlbench_s(peak)

Intel(R) C Intel(R) 64 Compiler Classic for applications running on Intel(R)
64, Version 2021.1 Build 20201112_000000

(Continued on next page)



SPEC CPU®2017 Integer Speed Result

Copyright 2017-2021 Standard Performance Evaluation Corporation

Hewlett Packard Enterprise

(Test Sponsor: HPE)

Synergy 480 Gen10 Plus
(2.30 GHz, Intel Xeon Platinum 8380)

SPECspeed®2017_int_base = 11.6

SPECspeed®2017_int_peak = 11.8

CPU2017 License: 3

Test Sponsor: HPE

Tested by: HPE

Test Date: May-2021

Hardware Availability: Jun-2021

Software Availability: Dec-2020

Compiler Version Notes (Continued)

Copyright (C) 1985-2020 Intel Corporation. All rights reserved.

```
=====
C      | 600.perlbench_s(base) 602.gcc_s(base, peak) 605.mcf_s(base, peak)
      | 625.x264_s(base, peak) 657.xz_s(base, peak)
```

Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64,
Version 2021.1 Build 20201113

Copyright (C) 1985-2020 Intel Corporation. All rights reserved.

```
=====
C      | 600.perlbench_s(peak)
```

Intel(R) C Intel(R) 64 Compiler Classic for applications running on Intel(R)
64, Version 2021.1 Build 20201112_000000

Copyright (C) 1985-2020 Intel Corporation. All rights reserved.

```
=====
C      | 600.perlbench_s(base) 602.gcc_s(base, peak) 605.mcf_s(base, peak)
      | 625.x264_s(base, peak) 657.xz_s(base, peak)
```

Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64,
Version 2021.1 Build 20201113

Copyright (C) 1985-2020 Intel Corporation. All rights reserved.

```
=====
C++     | 620.omnetpp_s(base, peak) 623.xalancbmk_s(base, peak)
      | 631.deepsjeng_s(base, peak) 641.leela_s(base, peak)
```

Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64,
Version 2021.1 Build 20201113

Copyright (C) 1985-2020 Intel Corporation. All rights reserved.

```
=====
Fortran | 648.exchange2_s(base, peak)
```

Intel(R) Fortran Intel(R) 64 Compiler Classic for applications running on
Intel(R) 64, Version 2021.1 Build 20201112_000000

Copyright (C) 1985-2020 Intel Corporation. All rights reserved.



SPEC CPU®2017 Integer Speed Result

Copyright 2017-2021 Standard Performance Evaluation Corporation

Hewlett Packard Enterprise

(Test Sponsor: HPE)

Synergy 480 Gen10 Plus
(2.30 GHz, Intel Xeon Platinum 8380)

SPECspeed®2017_int_base = 11.6

SPECspeed®2017_int_peak = 11.8

CPU2017 License: 3

Test Sponsor: HPE

Tested by: HPE

Test Date: May-2021

Hardware Availability: Jun-2021

Software Availability: Dec-2020

Base Compiler Invocation

C benchmarks:

icx

C++ benchmarks:

icpx

Fortran benchmarks:

ifort

Base Portability Flags

600.perlbench_s: -DSPEC_LP64 -DSPEC_LINUX_X64
602.gcc_s: -DSPEC_LP64
605.mcf_s: -DSPEC_LP64
620.omnetpp_s: -DSPEC_LP64
623.xalancbmk_s: -DSPEC_LP64 -DSPEC_LINUX
625.x264_s: -DSPEC_LP64
631.deepsjeng_s: -DSPEC_LP64
641.leela_s: -DSPEC_LP64
648.exchange2_s: -DSPEC_LP64
657.xz_s: -DSPEC_LP64

Base Optimization Flags

C benchmarks:

-DSPEC_OPENMP -std=c11 -m64 -fopenmp -Wl,-z,muldefs -xCORE-AVX512
-O3 -ffast-math -flto -mfpmath=sse -funroll-loops
-qopt-mem-layout-trans=4 -mbranches-within-32B-boundaries
-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc

C++ benchmarks:

-DSPEC_OPENMP -m64 -Wl,-z,muldefs -xCORE-AVX512 -O3 -ffast-math
-flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4
-mbranches-within-32B-boundaries
-L/opt/intel/oneapi/compiler/2021.1.1/linux/compiler/lib/intel64_lin/
-lqkalloc

Fortran benchmarks:

-m64 -xCORE-AVX512 -O3 -ipo -no-prec-div -qopt-mem-layout-trans=4
-nostandard-realloc-lhs -align array32byte -auto
-mbranches-within-32B-boundaries



SPEC CPU®2017 Integer Speed Result

Copyright 2017-2021 Standard Performance Evaluation Corporation

Hewlett Packard Enterprise

(Test Sponsor: HPE)

Synergy 480 Gen10 Plus
(2.30 GHz, Intel Xeon Platinum 8380)

SPECspeed®2017_int_base = 11.6

SPECspeed®2017_int_peak = 11.8

CPU2017 License: 3

Test Sponsor: HPE

Tested by: HPE

Test Date: May-2021

Hardware Availability: Jun-2021

Software Availability: Dec-2020

Peak Compiler Invocation

C benchmarks (except as noted below):

icx

600.perlbench_s: icc

C++ benchmarks:

icpx

Fortran benchmarks:

ifort

Peak Portability Flags

Same as Base Portability Flags

Peak Optimization Flags

C benchmarks:

600.perlbench_s: -Wl,-z,muldefs -prof-gen(pass 1) -prof-use(pass 2)
-xCORE-AVX512 -ipo -O3 -no-prec-div
-qopt-mem-layout-trans=4 -fno-strict-overflow
-mbranches-within-32B-boundaries
-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc

602.gcc_s: -m64 -std=c11 -Wl,-z,muldefs -fprofile-generate(pass 1)
-fprofile-use=default.propdata(pass 2) -xCORE-AVX512 -flto
-Ofast(pass 1) -O3 -ffast-math -qopt-mem-layout-trans=4
-mbranches-within-32B-boundaries
-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc

605.mcf_s: basepeak = yes

625.x264_s: -DSPEC_OPENMP -fopenmp -std=c11 -m64 -Wl,-z,muldefs
-xCORE-AVX512 -flto -O3 -ffast-math
-qopt-mem-layout-trans=4 -fno-alias
-mbranches-within-32B-boundaries
-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc

657.xz_s: basepeak = yes

(Continued on next page)



SPEC CPU®2017 Integer Speed Result

Copyright 2017-2021 Standard Performance Evaluation Corporation

Hewlett Packard Enterprise

(Test Sponsor: HPE)

Synergy 480 Gen10 Plus
(2.30 GHz, Intel Xeon Platinum 8380)

SPECspeed®2017_int_base = 11.6

SPECspeed®2017_int_peak = 11.8

CPU2017 License: 3

Test Sponsor: HPE

Tested by: HPE

Test Date: May-2021

Hardware Availability: Jun-2021

Software Availability: Dec-2020

Peak Optimization Flags (Continued)

C++ benchmarks:

620.omnetpp_s: basepeak = yes
623.xalancbmk_s: basepeak = yes
631.deepsjeng_s: basepeak = yes
641.leela_s: basepeak = yes

Fortran benchmarks:

648.exchange2_s: basepeak = yes

The flags files that were used to format this result can be browsed at

http://www.spec.org/cpu2017/flags/Intel-ic2021-official-linux64_revA.html
<http://www.spec.org/cpu2017/flags/HPE-Platform-Flags-Intel-V1.0-ICX-revC.html>

You can also download the XML flags sources by saving the following links:

http://www.spec.org/cpu2017/flags/Intel-ic2021-official-linux64_revA.xml
<http://www.spec.org/cpu2017/flags/HPE-Platform-Flags-Intel-V1.0-ICX-revC.xml>

SPEC CPU and SPECspeed are registered trademarks of the Standard Performance Evaluation Corporation. All other brand and product names appearing in this result are trademarks or registered trademarks of their respective holders.

For questions about this result, please contact the tester. For other inquiries, please contact info@spec.org.

Tested with SPEC CPU®2017 v1.1.8 on 2021-05-21 15:44:36-0400.

Report generated on 2021-08-11 14:57:07 by CPU2017 PDF formatter v6442.

Originally published on 2021-08-11.